

AMENDMENTS TO THE SPECIFICATION:

Please insert the following sentence after the Title and before the section "Field of the Invention":

This application is a divisional of U.S. Application Serial No. 09/749,613, filed December 28, 2000, now U.S. Patent No. 6,768,921.

Please amend the paragraph beginning on page 26, line 14, as follows:

Conductive paths 42 and 43 connect on their other ends to connector tabs 45. There are also 16 ground conductive paths 44, one each positioned between current injection electrodes 33 and voltage measurement electrodes 34 and their conductive paths 42 and 43, to enhance electrical isolation and reduce cross-talk between these circuit elements. Ground conductive paths 44 connect to connector tabs 46. Note the repeating sequence of two adjacent current paths 42 connected to two adjacent connector tabs 45, an intervening ground path 44 connected to its connector tab 46, then two adjacent voltage paths 43 connected to two adjacent connector tabs 45, with the insertion of a ground path between all current and voltage connector tabs 45, results in further reduction of cross-talk between current and voltage circuit sides. The trapezoidal shape of connector tabs 46 serve a special function, as will be described in the following section. In addition, in some embodiments, there is a gap 46a in the spacing of connector tabs 46.

Please amend the paragraph beginning on page 29, line 26, as follows:

Connector ring 53 of flexible ribbon cable 48 is then slipped onto cylindrical tube 67 of base part 63 so that the following conditions are satisfied: (1) the exposed electrode tabs 51 and 52 of connector ring 53 face electrode tabs 45 and 46 of breast electrode array 31; (2) alignment

holes 61 of the connector ring 53 engage alignment pins 69 of base part 63; and (3) flexible ribbon cable 48 is oriented such that 72-pin connector 55 is directed toward the subject's head. Satisfying these conditions will cause electrode tabs 51 of connector ring 53 to fully overly electrode tabs 45 of breast electrode array 31 and cause trapezoidal electrode tabs 52 of connector ring 53 to be staggered with and slightly overlap trapezoidal electrode tabs 46 of breast electrode array 31 making a continuous electrical path. This aspect of the invention has two features. Firstly, since electrode tabs 46 and 52 form a continuous electrical path between the two ground connections 60, shown in FIG. 7B, only two ground conductive paths are required. In some embodiments, gap 46a, shown in Figure 6, is utilized to prevent a direct conductive path immediately between the two ground connections 60. The consequence of gap 46a is that the conductive path extends from the ground connection 60 through each of the electrode tabs 52 and connector tabs 46 before reaching the second ground connection 60. Secondly, it provides an electrical test of proper application of connector ring 53 to breast electrode array 31 because any application other than the correct one, will cause a break (open circuit) in the continuous electrical path and indicate, as well, that electrode tabs 51 of connector ring 53 are not aligned correctly with electrode tabs 45 of breast electrode array 31. Choice of size, shape, and degree of overlap of mating electrodes tabs 46 and 52 establishes the desired degree of rotational misalignment sensitivity, and measuring the resistance of the conductive paths serving these electrode tabs could also be used to provide an indication of the degree of misalignment and the contact pressure. Other implementations of this technique are possible by varying the number and pattern of missing connections to ground electrode tabs, then relying on establishing a ground connection circuit that requires correct rotationally staggered alignment of ground electrode tabs on connector ring 53 and breast electrode array 31